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HELICOPTERS AND HELIPORTS

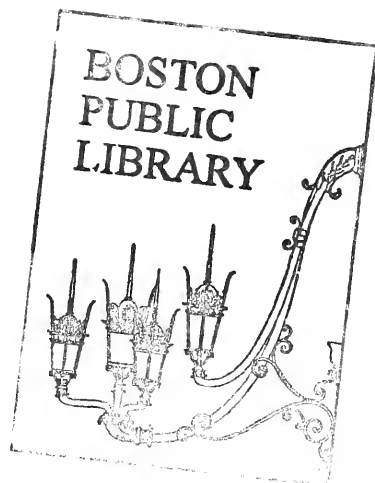
An Investigatory Study

by

Robert G. Davidson

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Helicopters and Heliports - An Investigatory Study

This is about helicopters and heliports. Questions have been raised about this new method of travel. What is it? What can it do? Is the helicopter and its potential use something that deserves further study by public officials? Partial answers to these and other questions about the helicopter are presented herein.

A substantial amount of information is available about the new kind of aircraft - its characteristics and potential usefulness. The intent here is to summarize, in as few words as possible, the pertinent information basic to a clearer understanding of the subject.

THE HELICOPTER

Maneuverability Characteristics - The significant difference between the helicopter and fixed-wing aircraft is the ability of the rotary wing craft to maneuver with great versatility in flight or when landing. The helicopter can:

- (1) ascend or descend vertically or at any given angle.
- (2) fly in any horizontal direction (frontwards, backwards, or sideways),
- (3) remain stationary (hover) in midair,
- (4) land safely in the event of power failure (because the rotor will continue to rotate pursuant to the principle of auto-rotation)
- (5) land in very small areas.

These features (especially the ability to land in small areas) are the primary reasons why aviation experts believe that this craft will become one of the most outstanding links in the field of transportation.

Development of the helicopter. It is important to note that the helicopter of today is but the beginning of what is to come. The aircraft industries estimate that:

- between now and 1960 helicopters will have a capacity of 8 to 10 passengers, and a cruising speed of 85-100 mph
- between 1958 and 1965 (described as the "period of growth") they will have a capacity of 15-21 passengers and a cruising speed of 115-120 mph.
- between 1963 and 1970 (described as the "period of mature expansion") they will have a capacity of 30-40 passengers and a cruising speed of 135-145 mph.

Additional observations regarding the development of the helicopters are:

- that helicopters for commercial use will be available by 1958 if not sooner
- that helicopter developments will be effected by the amount of use made of helicopters and therefore by the availability of well located heliports,
- that operating costs will reduce (as helicopters become larger, faster, and regularly scheduled) to an estimated \$.04 to \$.05 per seat mile.

The potential functions of helicopters have received considerable, but not exhaustive, attention and study. In view of the ability to land in small areas and therefore close to downtown business districts (and other selected spots easily accessible to potential users) and in view of its relatively high

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speed, the helicopter is expected to successfully compete with all other methods of transportation for the short-haul passenger and cargo trade. More explicitly, the potential market has been subdivided into four types of service: Intercity service, intrametropolitan service, aerocab service, and special services.

INTERCITY SERVICE - This type of service would consist of regularly scheduled flights between one major city and another. Observations regarding this potential market are as follows:

- . Detailed surveys by aviation experts indicate that (and assuming a landing area in the business district of each major city) helicopters will be able to compete with all other methods of travel within distances of 25 to 200 miles and will offer attractive travel-time savings within distances of 50 to 150 miles.
- . This service will probably draw more customers from surface carriers (which now cater to travel of these distances) rather than air carriers (which cater to longer distance travel).
- . These time savings occur primarily because of the possibility of locating heliports near the business districts thereby greatly reducing the time spent in traveling to and from the airport.
- . Although Logan Airport in Boston is easily (and quickly) accessible from Downtown Boston this type of service still is attractive because

(a) airports in other cities (at the destination of a flight from Boston) are time consuming distances from those business districts and (b) other cities possibly susceptible to this service have no good airports at all.

- In fact the New England region is quite possibly one of the better areas for this type of service because of the large number of cities within 200 miles. Those cities within 50 miles include Worcester, New Bedford, Providence and Manchester. Within 100 miles are Springfield, Hartford, New London, New Haven, and The Cape. Within 150 miles are New Haven, Albany and Portland and within 200 miles are Augusta, Burlington, and New York.
- The possible time savings to a few example cities are as follows (allowing 10 minutes to get to bus, rail, and helicopter terminals, 10 minutes from them, and the actual recorded time to and from airports, and assuming 100 mph helicopter speeds):

Time (minutes)

Boston to	By Bus	Rail	Airplane	Helicopter
Worcester	80	75	60	43
Providence	110	74	75	44
Springfield	200	140	96	65
Manchester	155	95	62	48
Portland	230	135	70	78

- No information or estimate now exists about how much travel might be made between cities in New England. This information must of course be

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obtained before a final determination can be
made of inter-city helicopter service practic-
ability IN THE BOSTON AREA.

INTRA-METROPOLITAN SERVICE - This service has been visualized by the Port of New York Authority as a suburban - downtown commuter facility. Observations regarding this service are as follows:

- . A helicopter commuter service is probably more practical in a metropolitan area like New York with its far flung suburban and satellite communities than in an area such as Boston.
- . However a suburban service acting as a supplement to regularly scheduled intercity helicopter and airplane flights may be a possibility. Such service would carry passengers and cargo from the suburbs to a downtown heliport or Logan Airport and enable quick transfer to longer distance flights.
- . Privately owned commuter helicopters are also a possibility for those who will be able to afford them. It may be necessary, in time, to impose some regulations upon this type of travel if the use of helicopters becomes too extensive.

AEROCAB SERVICE This type of use is described as a taxi service between the downtown area and the airport

- . Aerocab service also appears more applicable to a city (like New York) where the airport is some

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distance from the downtown area.

- Logan Airport is close enough (time wise) to suggest that an air-taxi facility would receive limited use.

SPECIAL SERVICES. Helicopter use of this type is likely to be primarily for governmental purposes ranging from military to civil defense (of all kinds) to delivery of mail, traffic control and land surveys etc.

The possibilities here seem limitless and, as in the case of the three previous potential uses, must be kept in mind in more advanced surveys of helicopter use and heliports requirements. It is a strong possibility that all four functions described above will be practicable in Boston to a greater or lesser extent.

THE HELIPORT. The number, locations, and design of heliports is the subject matter of many studies. The observations that require emphasis are:

- (1) A single helicopter landing area need be no larger than an acre
- (2) It should have a minimum unobstructed vertical approach zone of 35° from the horizontal
- (3) It should have one 500' wide horizontal approach zone.
- (4) The approach zone and landing area should not be too close to buildings because of the excessive noise produced by the helicopter. The aircraft in-

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dustry is confident that noise can be somewhat reduced but there is no assurance that it can be reduced to the point of not being a nuisance.

(5) The large helicopters expected by the aircraft industries will not be able to land on normal first class buildings unless very extensive structural reinforcements are undertaken.

(6) The best downtown heliport location would be adjacent to water or railroad yards.

(7) A passenger heliport in Downtown Boston would undoubtedly require multiple landing areas, helicopter parking areas, off-street motor vehicle parking areas, and ticket concession, and control quarters. All these facilities will require a substantial amount of land; exactly how much must be determined by additional study.

(8) Additional heliport facilities near the downtown Area may also be needed for the landing of freight shipments.

(9) Three or four (or more) additional dual purpose (freight and passenger) heliport facilities may be found desirable at the junction of existing and proposed major expressways (such as the junction of Route 128, the proposed Western Expressway, and the Massachusetts Toll Road) to serve the same purpose as the NY., NH., & H's Route 128 station.

These heliports could accommodate suburban stops

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for outbound and inbound flights, and serve as stations for circumferential and/or radial supplementary feeder service.

All of these thoughts regarding Boston are to be regarded as expressions of possibilities. The whole subject of amount of potential travel by helicopter must be more fully explored before justifiable recommendations can be made.

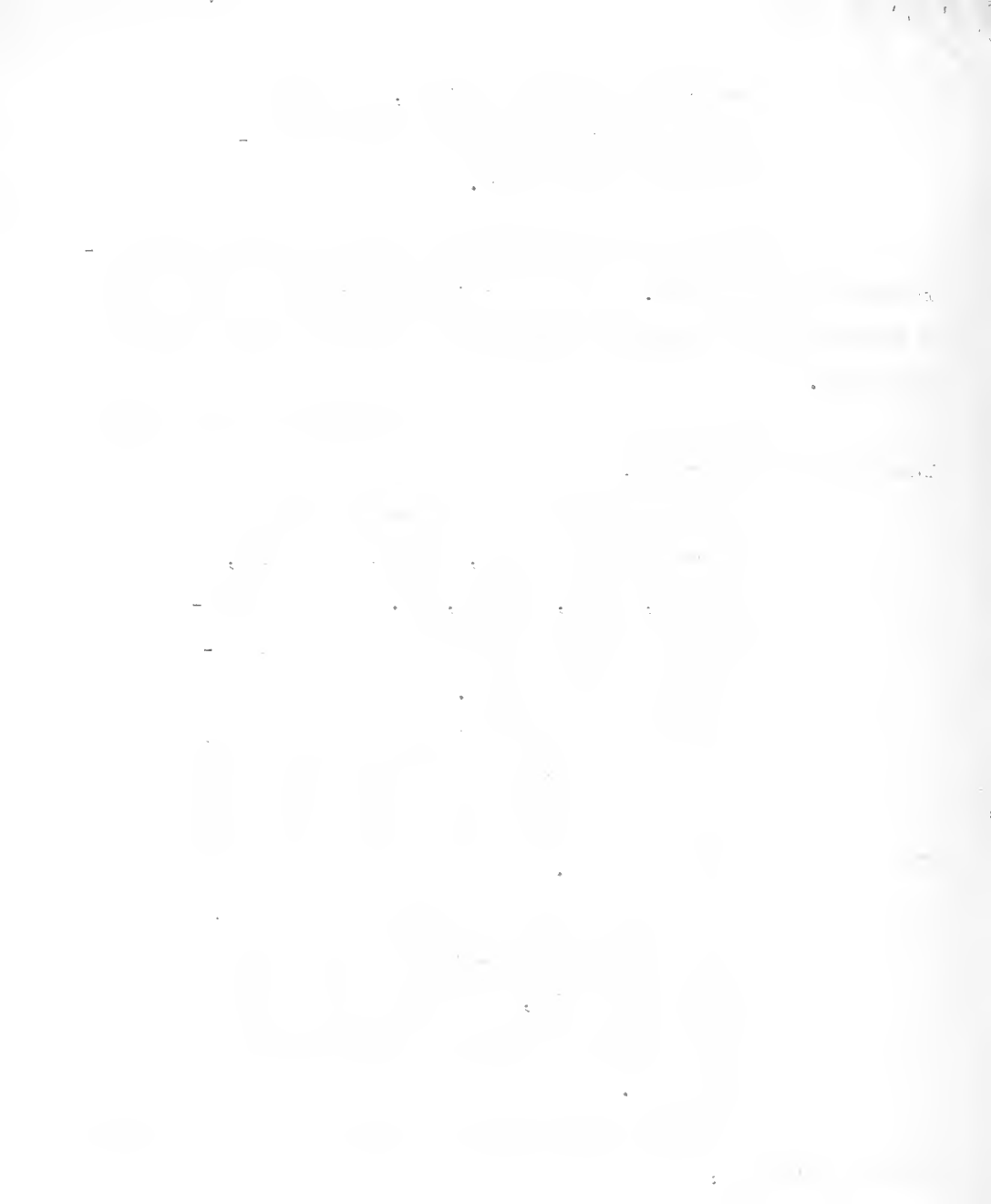
CONCLUSIONS AND RECOMMENDATIONS The conclusion of this brief investigatory study are that:

(a) the helicopter has in the past (in Korea) and is presently (in New York, Chicago, Los Angeles, Baltimore, London, Brussels, etc.) ably demonstrating its potential usefulness as a specialized passenger and freight carrier.

(b) aviation experts have invested adequate study, research and experimentation in this matter to show that helicopter travel will be a competitive method of transportation.

(c) the rapid progress of helicopter development, and the undetermined implications of this type of travel upon the city, fully warrant and deserve a more extensive study of the subject in the very near future.

Therefore it is recommended that a study be undertaken with the following objectives:



(a) to re-examine and bring up to date the time schedule of helicopter development

(b) to determine in more detail, the kind of market this craft is capable of competing for in New England,

(c) to determine, in some detail, the amount of helicopter travel that can be expected (and what type of flight controls are necessary) in the Boston area,

(d) to determine, as a result of the above, the required number, location, size and design of heliports in the Boston Area.

(e) to determine a time schedule of development of heliports, the governmental bodies to be responsible, and a method of finance, operation, and control, and

(f) to determine the initial course of action toward effectuation of the plan (if found desirable) by way of legislation, public relations, etc.

It is further recommended that this study be undertaken (initially at least) by the Boston City Planning Board and its staff with the understanding that it will be necessary to call upon, and receive the advice of, many other public and private organizations - such as the Massachusetts Aeronautics Commission, the Planning Division of the Massachusetts Department of Commerce, the various airlines and helicopter manufacturers etc.

